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ABSTRACT

The Technology Inservice Project (Project TIP) was designed to provide technology training and information to meet the staff development needs of early childhood administrators, teachers, and support personnel and early intervention team members, including families and regular educators. Approximately 2,000 people participated in 167 inservice events over the project's 3-year period. The project's focus was on providing training to increase the acceptance, knowledge, and use of computers and other assistive technology in early childhood classrooms. Participants were able to select from a menu of 18 inservice topics. Topics were organized into awareness and hands-on sessions for either child applications or adult productivity. Hands-on training was competency-based, and follow up was provided through on-site visits, printed resources, and telephone consultations. The project identified strategies for overcoming participants' fears about using technology and for setting up an environment conducive to learning. Other findings related to the role of administrative support and the necessity of follow-up training. Participant evaluations of inservice events indicated that they had increased both their knowledge and skills. The project has produced manuals, software, and videotapes available to the public. (Contains 12 references.) (DB)

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FINAL REPORT

Technology Inservice Project (Project TIP)

Early Education Program for Children with Disabilities
U.S. Department of Education
PR #H024P10077
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Technology Inservice Project (TIP)
Abstract

An Early Education Program for Children with Disabilities Inservice Project
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The Technology Inservice Project (TIP) was designed to provide technology training and information through a variety of inservice events to meet the staff development needs of early childhood administrators, teachers, and support personnel and early intervention team members, including families and regular educators. At least 1975 people participated in 167 inservice events over the Project's 3 year period.

TIP's four main goals were focused on providing inservice training which would increase the acceptance, knowledge, and use of computers and other assistive technologies in early childhood classrooms to the benefit of young children with disabilities, their families, and teachers. Five types of inservice activities were developed to reach a broad audience. Participants were able to select from a menu of 18 inservice topics. These topics were divided into awareness and hands-on sessions for either Child Applications or Adult Productivity. Hands-on training was competency-based to meet the individual needs of participants. Follow-up was provided through on-site visits, printed resources, and telephone consultations.

Project findings included strategies for overcoming participants' fears about using technology and for setting up an environment conducive to learning. Other findings related to the impact of administrative support on the implementation of assistive technology in the classroom, the necessity of follow-up training to the successful implementation of assistive technology. The Project also found that more technology inservice is needed to meet the needs of professionals and family members who desire to use computers and adaptive devices to equalize opportunities for young children with disabilities. Preservice training is often lacking, and further training is needed to keep pace with rapidly emerging technologies.

TIP training was evaluated by all participants immediately following an event. Follow-up evaluations were sent to selected participants 6 months after an event to determine whether information learned during TIP training had been put into practice. Evaluations indicate that participants increased both knowledge and skills as a result of participating in TIP training.

Numerous products and materials developed by TIP personnel contributed to the success of the Project. While many of these materials are not stand-alone resources, some of the manuals, software, and videotapes are available to the public.

Table of Contents

Abstract i

Table of Contents ii

Objectives and Goals of the Project 1

- Goals 1
- Objectives 1

Conceptual Framework for the Project 2

- Characteristics of Inservice 2

Description of the Training Model, Activities, and Participants 3

- Description of the Model 3
- Activities 3
- Inservices Choices 5
- Figure 1. Technology Inservice Project Menu of Training Contents 5
- Participants 5

Findings 6

- Reluctant Participants 6
- The Environment 7
- Administrative Support 8
- Follow-up Training 9
- Necessary Inservice 9

Project Impact. 9

- Number of People Participating in TIP Training. 9
- Table 1. Breakdown of Types of TIP Inservice Events 10
- Evaluation Results 11
- Dissemination Activities 13
- Materials and Products 14

Future Activities 17

Assurance Statement 17

References 18

Technology Inservice Project
Final Report

Goals and Objectives of the Project

Project TIP (Technology Inservice Project) developed, demonstrated, evaluated, and disseminated a competency-based technology inservice model responsive to the staff development needs of two target audiences who work with young children, ages birth through 8 with disabilities. These groups were early childhood administrators and early intervention team members, including families and regular educators.

Goals

Project TIP encompassed four major goals. The first was to increase the number of early childhood personnel who have competencies in technology applications so that children with disabilities, their families and programs will benefit from the advances in technology used by other segments of society. The second was to provide inservice which assists participants' use of existing and emerging technology in two technology components, Child Applications and Adult Productivity. The third goal was to increase technology awareness among early intervention personnel and to promote acceptance of new technologies that will be beneficial to young children and program staff. The fourth goal was to initiate a system of change, adding the innovations of technology to early childhood programs via TIP inservice.

Objectives

The objectives were designed to meet TIP goals cited above. They were divided into two major components: 1) Model Inservice Development (MID) objectives and 2) Direct Inservice (DI) objectives.

Model Inservice Development (MID) Objectives:

MID1. Develop effective procedures to implement competency-based model inservice on technology to target participants.

MID 2. Develop competency-based inservice modules related to technology applications for young children with disabilities.

MID 3. Develop competency-based inservice modules related to adult productivity technology applications.

MID 4. Evaluate TIP model development objectives.

MID 5. Disseminate information about the TIP model.

Direct Inservice Objectives:

DI1. Implement the Child Applications component of the TIP model.

DI 2. Implement the Adult Productivity component of the TIP model.

DI 3. Evaluate the components of the TIP model.

Conceptual Framework for the Project

TIP targeted two components: technology applications for children and technology applications for adults. "High tech" applications included use of Information Age equipment such as computers, adaptive hardware, software, videodiscs, and multimedia equipment. "Low tech" adaptations were simple strategies that included restructuring an activity or environment or using simple devices such as velcro strips or paintbrushes with extended handles.

TIP developers felt strongly that children with disabilities need access to the benefits of technology that nondisabled children enjoy. Technology can be an equalizer in many situations, including playing games, drawing, making music, or moving a robot across the floor with a computer, appropriate peripherals, and software. Children with disabilities ranging from mild to severe benefit in many ways when they use technology applications. TIP was designed to address the need to provide inservice for aides, administrators and members of the intervention team so they can assist, use and advocate appropriate technology applications.

Characteristics of Inservice

Project TIP's inservice model was based on information found in the literature related to inservice models in general and technology inservice in particular.

Inservice models. The literature on inservice was relatively rich, and numerous sources were consulted prior to the development of the TIP model. Information included research related to change (Bailey, 1989; Jones & Lowe, 1990), research related to effective training strategies (Glickman, 1985; Joyce & Showers, 1980; Mohlman, 1982; Wolfe, 1990), and research related to inservice planning factors (Bents & Howey, 1981; Glickman, 1985; Hall, Wallace & Dossett, 1973; McKibbin & Joyce, 1980).

Technology inservice. The literature also contained references to processes for conducting technology inservice. Fisher (1989) advocated focusing on instruction so participants will connect the use of computers to what they do in classrooms. Stecher and Solorzano (1987) identified key factors related to computer workshops: extensive practice with computers, a comfortable atmosphere, balance between lecture and practice, individualized attention, trainers who are knowledgeable, strategies for teaching heterogeneous classes, clear and relevant objectives, detailed plans, related handouts, peer interaction, and voluntary participation.

The practical training experiences of TIP developers indicated that individuals who are likely to initiate and continue to use technology with children are those who also make use of technology in their own lives. They use word processors, spreadsheets, data bases, even income tax preparation software, in their day-to-day activities in addition to their work with children. However, TIP was built on the assumption that inservice content must focus on technology applications for both children and adults.

Adult learners and training. The literature related to adult learners was particularly relevant to the TIP model development (Knowles, 1978, 1980). TIP developers used principles of adult learning within a framework built upon the participants involved in Macomb Projects' training activities for the past ten years.

Description of the Training Model, Activities, and Participants

Description of the Model

The TIP model had two basic components: Child Applications and Adult Productivity. Each of those components had a training menu of modules targeted for awareness presentations and hands-on presentations. (For a list of training materials and products, see the section entitled **Project Impact**.) Participants selected from the menu of modules according to their interests, needs, and competencies. Initial training was done either on the Western Illinois University campus or at the participants' sites.

Sites agreeing to participate in the TIP inservice model received a needs assessment, followed by initial awareness training and hands-on workshops on the topics necessary for site staff to most effectively understand and implement technology for the young children with disabilities in their classrooms. Pre- and post-competencies were evaluated; then TIP staff together with the participants made decisions about further training topics that would be needed. Follow-up was provided in person on a monthly or bi-monthly basis. TIP staff were available for technical assistance via telephone or fax when the teachers needed help.

Activities

TIP provided technology information and training to Illinois early intervention personnel in a variety of ways, depending on the interests and needs of the training participants. Training workshops were held in Macomb, Illinois on the Western Illinois University campus as well as at the sites of agencies and programs participating in the training.

TIP trainers learned that flexibility was the key to planning inservice events. At each inservice, especially the initial ones, participants' abilities varied a great deal. The trainers always had to be aware of that aspect of the training and plan activities which would challenge but not

overwhelm each participant. They did not want to bore those who had some background and experiences with computers, nor did they want to 'turn off' those who were new to technology by demonstrating technology applications beyond their experiences.

Three times a year in conjunction with the Fall, Spring, and Summer semesters at Western Illinois University, TIP held week-long training sessions. The workshop topics were selected from TIP's varied menu of modules and alternated from semester to semester, with some of the more popular and requested topics (such as switch construction) repeated more frequently. No fees were charged for these workshops. Participants were limited to 10 for each hands-on session. A greater number of participants attended individual awareness presentations since these presentations did not involve hands-on experiences with the computers. Participants were not required to register for the entire week of workshops. They chose to participate in those topics which most interested them.

TIP staff provided initial training and monthly follow-up services to schools in Jacksonville, Monmouth, and Peoria, Illinois. Jacksonville and Monmouth were involved with the Project from its beginning. Peoria committed to the Project during its second and third years. At each site, needs assessments were done, and teachers and program assistants received training and follow-up tailored to their specific interests, needs, and ability levels.

As word spread about TIP services, many schools and agencies arranged to have TIP staff provide awareness workshops on staff inservice days to acquaint teachers with the benefits and applications of assistive technology for children with disabilities. Interest was sparked in a majority of these sites, and TIP staff were asked to return to provide one or two-day hands-on workshops related to computer operation, curriculum integration, or other requested topics to help teachers become comfortable with technology.

TIP also worked in conjunction with a project in the Western Illinois University Special Education Department designed to train Special Education paraprofessionals. TIP provided the technology training for those enrolled in the paraprofessional program.

TIP staff often gave awareness and hands-on presentations at state, regional, and national conferences. These activities generated numerous requests for technology information and training. Teachers from states other than Illinois were welcome to attend scheduled TIP training events; however, TIP staff's commitments in Illinois precluded staff traveling to other states to provide inservice training.

Phone calls from teachers requesting help, resources, and troubleshooting tips were frequent. After TIP provided training to a school or agency, staff were available to support those teachers in many ways, including troubleshooting via telephone.

In addition to preparing for training events, TIP staff was constantly writing and revising its training modules, presentation materials, curriculum activities, and resource information to

keep current with emerging technologies. At times research into older technologies was required when a site requesting training did not have state-of-the-art technology yet was interested in putting to good use the equipment they did have.

Inservice Choices

As shown in Figure 1, TIP offered a wide menu of choices for inservice events. These choices included awareness sessions and hands-on training for both Child Applications and Adult Productivity components of the Project.

Figure 1. Technology Inservice Project Menu of Training Contents

Child Applications		Adult Productivity	
Awareness sessions	**Hands-on workshops**	**Awareness sessions**	**Hands-on workshops**
Children and Computers What Does It Take?	Getting to Know Your Computer	Overview of Graphic Applications	Finance Management
Assessing the Child with Severe Disabilities	Peripheral Devices	Getting Started in Multimedia	Database and Spreadsheet Applications
	Birth to Three Technology Applications	Software Overview	Getting to Know Your Mac
	Preschool Technology Applications		Word Processing and Desktop Publishing
	Switch Workshop		Graphics Applications
	Logo in the Early Childhood Curriculum		
	Adaptive Firmware Card		
	Applications for Children With Severe Disabilities		

Participants

The majority of participants in TIP training were women who were early childhood or special education teachers or aides. Some had computers in their classrooms already but were not using them because they were not sure what to do. Others knew that technology was a coming

thing for their schools and wanted to get a head start on understanding it. For the most part, participants were eager to participate in the training because they knew about technology and were interested in exploring ways technology could benefit the young children with disabilities in their classrooms and at the same time increase their own personal productivity. However, some participants were reluctant to become involved, attending training not because they *wanted* to but because an administrator *required* them to.

Administrators were invited and encouraged to attend the training sessions with their teachers. Although administrators for the most part did not participate in the entire training, most were present and took part at various times throughout the day. Parents of young children with disabilities were also welcome to attend any TIP training offered at Western Illinois University. TIP staff also encouraged schools and agencies who scheduled training to invite parents to attend. Some schools did invite parents; however, parents seldom participated in the training with the teachers. Whether work schedules interfered or parents did not feel comfortable coming to the teachers' workshops is unknown.

Sites that used TIP services on a regular basis often scheduled special workshops just for parents as part of the site's follow-up training activities. These workshops customarily had eight to ten parents or family members attending. Often sufficient computers were not available for the number of parents participating. One site finally solved the problem by hosting morning-long workshops divided into two sessions, with three or four parents scheduled per session. Everyone had access to a computer. These workshops were held weekly and attendance remained consistent. Site staff were pleased with the amount of parent involvement generated by the workshops, and parents were pleased because they were attaining new skills to help meet their children's needs. Some parents involved in these workshops volunteered time in the classrooms to facilitate computer use by their children.

Findings

Target audiences were composed of individuals whose needs, skills, and interests in understanding and using technology were extremely varied. Contact revealed information important for organizing and conducting successful technology inservice training events. This information contributed to the design, evolution, and ultimate success of the Technology Inservice Project.

Reluctant Participants

As difficult as it is for those who have become proponents of assistive technology as a way to equalize opportunities for young children with disabilities to understand, not everyone

has jumped on the technology bandwagon. There are those administrators, teachers, program assistants, and therapists who haven't quite been convinced about technology's benefits. Understanding the reasons these reluctant training participants have for not advocating technology can make the difference between a successful and unsuccessful training event.

Reluctance to implementing assistive technology stems from the following basic reasons:

- fear of the unknown and a desire to maintain the status quo,
- apprehensions about breaking or misusing expensive equipment,
- time constraints involving learning new skills needed to implement the technology in the classroom and restructuring the curriculum to include technology as a learning center,
- perceptions of themselves as incapable or "stupid" about computers,
- previous unsuccessful experiences with technology,
- lack of support from peers,
- belief that learning about technology is a waste of time because the school would not have funds to purchase the equipment,
- lack of belief in the benefits technology has to offer young children with disabilities.

Recognizing that motivation to learn about and implement technology must be internal, TIP trainers created situations to give reluctant participants, especially those fearful of the equipment and those with previous unsuccessful experiences, reasons to learn. Discussions about fears and past experiences, step-by-step hands-on instruction, and built-in successes encouraged reluctant participants to continue learning and gave them an appreciation for technology as an important tool for learning. Additionally, TIP trainers demonstrated to participants how useful a tool for productivity the computer was. Participants learned about making newsletters, creating databases, word processing, and using other similar applications. Negative attitudes toward involvement in the training became positive attitudes when participants experienced success with the equipment and left with information that was practical and immediately applicable.

TIP trainers encouraged participants to attend training with other teachers from their schools so they would have support systems when they were away from Project TIP. Teachers who attended in pairs or small groups had others to discuss the training content with, to brainstorm curriculum ideas with, to assist them when the technology gave them problems, and to encourage them when they felt overcome by the content.

The Environment

From its beginning, TIP advertised its training as "non-threatening" -- and followed through on that promise. TIP trainers were people-oriented, non-judgmental, and eager to share their knowledge and excitement about technology and its benefits for both teachers and children. Their excitement was contagious, and participants responded well to their obvious objective that

everyone should leave the training having learned something s/he could put into effect immediately.

Key factors in the non-threatening learning environment were trainers who supported and facilitated the participants from the participants' levels, recognizing individual differences, needs, and concerns; hands-on experiences with the computers and peripheral devices which allowed participants to feel comfortable setting up and connecting equipment; encouragement of participants' experimentation and exploration of the equipment and software; discussions and sharing of ideas, concerns, and experiences; and a recognition that the equipment doesn't always work. Perhaps some of the most beneficial moments in training occurred when the trainers themselves experienced problems with the computer or a peripheral device, demonstrating that even the "experts" often are subject to the quirks of temperamental equipment. Trainers treated these instances as learning experiences and opportunities to demonstrate troubleshooting techniques that would work in the classroom.

Administrative Support

Administrative support is essential if any classroom, program, or agency is to implement assistive technology successfully; however, teachers also have to be involved in the decisions to participate in the workshops. TIP trainers experienced two general types of administrative support, one which benefited the inservice training and subsequent events, the other which undermined training efforts.

Technology inservice training sessions imposed by the administrator without input from the participating teachers were unsuccessful, for the most part. If the teachers themselves had little desire to understand and use technology, if they had no input as to the inservice topic, or if they saw the technology as yet another "thing the administration was making them do," attempts by TIP trainers to get them excited about technology and eager to implement it in their classrooms usually feel flat. However, once in a while, teachers overcame their initial resentment of the workshop and responded to the trainers. Comments on workshop evaluations from such teachers indicated, *"I didn't want to be here at first, but you made the computer look so easy. I had fun and learned a lot."* and *"I thought I'd hate this workshop, but it gave me some great ideas for curriculum."*

Training was most successful when teachers and administrators planned together for TIP workshops. Whether the initial idea to host a TIP workshop was a teacher's idea or an administrator's idea, if there was collaboration, the results were good. When either group tried the workshop without support and input from the other, events often did not go smoothly. If teachers organized or pushed for a technology workshop without administrative support, the workshop itself was successful but, since there was no administrative support and follow

through, teachers' initial excitement about implementing technology turned to frustration due to the administrator's lack of enthusiasm.

Follow-up Training

The TIP inservice model is based on initial awareness training followed by hands-on workshops on various technology topics, follow-up training sessions and continued support. Agencies and schools which participated in this inservice model were successful in implementing or improving their use of technology in both of the TIP components, Child and Adult Applications.

TIP also provided awareness and initial training to various schools or agencies that later chose not to follow through on the entire system, some because of teacher or administrative reluctance, some because of lack of funds to purchase computers and adaptive devices. Comparing the outcomes and successes of these two groups, TIP found what might be expected: 1) one-shot training sessions do not contribute to successful implementation of technology in the classroom; 2) follow-up training and support of teachers as they learn new skills is essential to success.

Necessary Inservice

TIP also found that technology inservice training is necessary if technology is to be successfully integrated into the classroom and used to benefit the children with disabilities. Often, such inservice training is the only way teachers have to gain new information about technology and to practice the necessary skills. University programs are slow to infuse technology into preservice training, in spite of the fact that the benefits of assistive technology have been well researched and documented. Teachers who have been in the field may gather information from conference presentations, but they need hands-on training to be able to implement technology into their classroom curriculum. Paraprofessionals, program assistants, and therapists rely on inservice training to hone current skills and to learn valuable new skills to assist the children with disabilities whom they serve.

Project Impact

Number of People Participating in TIP Training

At least 1975[1] people participated in a variety of TIP training events over the Project's three-year period. Table 1 shows a breakdown of five types of TIP inservice events and the

[1] Individuals who participated in multiple workshops were counted only once.

Table 1. Breakdown of Types of TIP Inservice Events by Number and Number of Participants

Type of Inservice Event	Number of Events	Number of Participants
Workshops	71	532
Conference, Presentations	38	1115
Satellite Television Program	1	78*
WIU Class Presentations	2	67
Training Sessions at WIU	55	183
Total	167	1975

*Indicates number of people who registered to view the program, not actual number of viewers

number of participants in each. TIP held 71 workshops away from WIU, hosted 51 training sessions at WIU, and presented awareness information to students in two early childhood classes at WIU. TIP staff presented 38 sessions on a variety of topics relating to technology, early childhood, and disabilities at international, national, regional, state, and local conferences.

The staff also provided information about children with disabilities and technology on one interactive satellite television program, **There's A Mouse in My Classroom!**, broadcast from WIU. Measuring the impact of this program is difficult. The program was advertised only in Illinois, and 78 Illinois teachers pre-registered to receive the handouts that accompanied it. However, since the program was broadcast throughout the United States on both KU and C bands, the potential existed for many more viewers. Videotapes of the program were made during the broadcast. Two individuals rented the video for personal use, and five Illinois school districts and Special Education Cooperatives purchased copies of the video for inclusion in their resource materials. We have no way of knowing how many viewers copied the program as it was broadcast.

Evaluation Results

Inservice events were evaluated by TIP staff and by training participants following each training session. Ratings and comments made by those participants completing evaluations determined the strengths and weaknesses of TIP's training. Changes in training format, content, and presentation were made based on that feedback. Follow-up evaluations were also sent to training participants six months after training to determine if TIP training had had the expected impact on the participant.

Evaluation results of TIP activities indicate the following.

- All participants, even those who were reluctant, indicated the purposes of the training sessions and presentations were accomplished,
- All respondents indicated the presentations and training sessions were informative,
- Overall, presentations and training sessions were rated highly (either 4 or 5, with 5 being the highest rating) for areas of organization, content, knowledge of TIP staff, helpfulness of TIP staff, quality of handouts and materials, usefulness of training to participants' activities or programs, contributions of the training to participants' knowledge, skills, and teaching methods.

Competencies. Training participants completed self-evaluation forms of their competencies both before and after participating in TIP hands-on training. Competency forms were related to the specific topic of the training. For example, the competency form for the HyperStudio workshop related to skills involved in creating stacks, adding buttons, adding sound, and creating animation. The form for the peripheral workshop related to connecting and using various peripherals, such as a TouchWindow, PowerPad, IntelliKeys, and printer. In all cases, prior to training, no more than one or two people in a training event indicated they felt competent or had many computer-related skills. Following training, self-perceived competency levels more than doubled in every case. While a participant might have marked that she felt competent in only one or two skill areas prior to training, following training usually all but one or two skills were marked.

Teacher comments. Teachers reported increased knowledge and skills in the general areas of equipment, software, assessment, and curriculum integration. Concerning equipment, teachers felt the training had been valuable in teaching them how to set up the computer and correctly attach and use various adaptive peripherals. Representative comments on this subject include. *"I think the best thing I got from the inservice is becoming more comfortable with the computer and becoming less afraid of doing the wrong thing." "Troubleshooting tips are great! They come from practical experiences and make the difference in the use of the computer and my work." "It was great to have hands-on experiences with so many devices. This information will help me when I present requests for equipment purchases to my administrator."*

Comments about software included enjoying the opportunities to preview a wide variety of software, to learn about the programs that are available, to evaluate the appropriateness of various programs, to discuss program features and their possible impact on individual children, and to gain confidence in program selection. *"I feel more informed on what new software to purchase;" "I was familiar with the programs but unaware of the things they could do;" "I am confident in choosing appropriate programs and can integrate them into my classroom plans,"* were among the many comments received from TIP participants. In addition, participants were extremely satisfied with information received about public domain software. All commented that they could use such programs to enhance and supplement the commercial software and that they were happy to learn interesting software was available for such low prices.

Individuals often commented that they had gained new insights into the importance of a comprehensive technology assessment, that they understood that children had varying needs and the best ways to meet those needs through technology began with an assessment. Many of them indicated technology assessment was something they had not given much thought to previously. One participant wrote, *"The information received will give us direction --make us more confident, more efficient -- in doing assessments. The children will benefit."*

More often than not, teacher comments focused on the ideas TIP trainers had presented for curriculum integration. They were excited by the concept of the computer being a learning center with software used to introduce, enhance, or extend the classroom curriculum. Comments included, *"I'm excited about including* ***Katie's Farm*** *and* ***What Makes a Dinosaur Sore*** *in my units on farm animals and dinosaurs. I had not thought of the computer in this way before." "It will be a great motivator for the children." "I see it as a good way to involve the children with more severe disabilities in activities the other children are involved in."*

Follow-up evaluations. Follow-up evaluations were sent to participants six months after training. The majority of these evaluations indicated that teachers had put into practice many of the ideas they received from TIP training. If skills received during training had not been implemented, teachers listed lack of funds, lack of time, and lack of equipment as the reasons. These teachers also indicated that they were still trying to make progress for furthering technology use in their classrooms, that they had not "given up."

TIP follow-up evaluations asked teachers to report on the positive effects they realized resulted from TIP training. Sample statements follow.

"TIP has changed my way of thinking about computers. I used to be afraid to work on computers. I really have come a long way."

"This program has encouraged me to create a computer lending service. Each Pre-K student and parent can borrow the Apple IIGS computer and software for one week at a time in their home."

"We have developed a computer training program for Pre-K parents on Tuesday and Thursday mornings."

"I am able to create and customize programs for children depending on their needs. It has opened a whole new area for me to use in my treatment sessions."

"The children in my class have become very independent using the computer. They wouldn't have all their knowledge if I hadn't had the benefit of Project TIP."

"TIP gave me insight into purchasing equipment more wisely."

"We now have other Early Childhood teachers involved and the great thing is that parents of our students come in and work on the computers."

"I decided to write a grant to incorporate more technology into our program, to make individual ***Kid Pix*** *portfolios, to put adults and parents on the computer, and to initiate computer time for 2 and 3 year olds."*

"The children seem to be very interested in computers, and the software will hold their attention when other things won't. There is so much software available that their computer time is a valuable learning time."

"I worked with a non-verbal boy who loved not only the pictures he made on the Mac with the TouchWindow but also the sounds he recognized (like water dripping). He would listen to the sounds for 5 to 10 minutes, sometimes not even looking at the screen."

"The children I work with are severe and profound mentally disabled and some have multiple physical handicaps. These children love the computer, and with adapted devices, it is accessible to them. It means so much to them that they can achieve results just like other students or family members."

Dissemination Activities

Information about TIP's inservice model and training sessions was disseminated in many ways. Articles were written and training dates were advertised in the quarterly publications of **ACTTive Technology**, a publication of Project ACTT (Activating Children Through Technology) which is distributed across the United States and **Under the Apple Tree**, a publication of Project APPLES/R*TAS Regions I and III, which is distributed to over 3000 preschool teachers in Illinois. Training information was published in the Illinois Assistive Technology Project's newsletter **TECH TALK**, which is distributed throughout Illinois.

Brochures advertising TIP training opportunities were sent to schools throughout Illinois prior to each Fall, Spring, and Summer semester when training sessions were held. Brochures included descriptions of the sessions, training dates, and registration forms.

TIP training was also advertised in a brochure about Macomb Projects' three technology training projects (ACTT, TTAP, and TIP). These brochures were mailed to state assistive

technology projects and Part 619 and H coordinators in each state. Information about the three training projects also was posted on electronic bulletin boards. Brochures about TIP were made available at state, regional, and national conferences where Macomb Projects' staff members were presenting information about technology and young children with disabilities. These same brochures were included in awareness mailings to persons writing to Macomb Projects to request information about technology training.

TIP trainers collaborated with another of Macomb Projects' early childhood technology projects to present an hour and a half interactive satellite television program, **There's A Mouse in My Classroom!** on APPLES Magazine. Integrating the computer into the early childhood curriculum was the topic of the discussion. Curriculum activities developed by TIP using various early childhood software programs as foundations were demonstrated. Because the program was carried on satellite, audiences across the United States were capable of receiving the information. Copies of the program are also available on videotape from Project APPLES in care of Macomb Projects, 27 Horrabin Hall, Western Illinois University, Macomb, IL 61455.

Materials and Products

Project TIP developed the following modules, manuals, and handouts for use during training, awareness and hands-on workshops, and conference presentations. These materials, for the most part, are not stand-alone materials. Rather they were created to accompany, support and enhance the workshop demonstrations and discussions. Those available as products from Macomb Projects are listed under the "Products" heading below.

Materials created for workshops. The materials listed in this section were designed as modules or manuals for the various inservice and hands-on workshops offered as part of the TIP training menu. These products are *not* available as stand-alone materials; however, many were based on materials that were developed by and are available from Macomb Projects. *Getting to Know Your Computer*, a manual for an introductory hands-on workshop, familiarized participants with computer setup and operation. Specific do's and don'ts as well as a "how to" section were included in the manual.

The first section of *Kids & Computers...What Does It Take?* identified the various parts of the Apple IIe, Apple IIGS, and Macintosh computers, then listed children's software (commercial and public domain) and software for use by teachers and parents. Software was identified by title, input method, publisher, and computer type. The second section provided a brief overview of common peripheral devices, such as the PowerPad. The final section provided resource information, giving names and addresses of companies which manufacture or distribute the peripheral devices and software mentioned in the module.

An Apple for Any Teacher! was used in training sessions specifically relating to peripheral devices for either Apple II series or Macintosh computers. The manual described each peripheral device, listed procedures for installing and operating the device, gave troubleshooting tips, and suggested software for use with each device. A resource section provided company names and addresses.

There's A Mouse in My Classroom! was used in training sessions to demonstrate how computer software could be integrated into the entire curriculum. TIP trainers showed training participants activities for a variety of software programs. The manual described the software and listed the materials (and sources for buying the materials) which were used to create the activities. A special section in the manual discussed CD-ROMs and how to handle them. Popular CD-ROM software was highlighted and activities suggested. This manual also contained a resource section.

Birth to Three Technology Applications was used in hands-on workshops for teachers serving the birth to 3 population. Philosophy of technology use, designing the environment, assessing individual needs, and determining appropriate technology were topics of discussion. Demonstrations of activities involving battery-operated toys and switches were given.

Preschool Technology Applications was used in hands-on workshops which focused on designing the computer environment, characteristics to look for in appropriate software, and peripheral devices which are effective and appropriate for preschool children. The workshop involved a demonstration of activities which used technology to enhance language, cognition, and social skills.

Applications for Children with Severe Disabilities was used in hands-on workshops which focused on applications for the Adaptive Firmware Card and peripheral devices effective for use with young children with severe disabilities. Curriculum integration was discussed.

The *Peripheral Devices* module described 25 peripheral devices (e.g. Echo, Ke:nx, Printers, CD-ROM drives) and gave installation directions as well as tips for using.

Assessing the Child with Severe Disabilities outlined assessment procedures and instruments developed by Macomb Projects' Project TTAP (Technology Team Assessment Process). The training gave a brief introduction to the importance of a technology assessment. Participants viewed videotapes of actual TTAP assessments and discussed procedures.

Adaptive Firmware Card manual was used in conjunction with training on developing applications for the AFC. Benefits for children with severe disabilities were discussed. Public domain setups were demonstrated. Participants learned to develop AFC applications for Normal, Multiple Switch Box, Unicorn Expanded Keyboard, and Mouse Emulation.

Switches Under Construction was used as a step-by-step guide during switch making workshops. It gave directions for making a battery interrupter and a variety of switches including a tread switch, a pillow switch, a mercury switch, and a coaster switch.

HyperStudio! It's Easier Than You Think accompanied a **HyperStudio** workshop and offered quick and easy tips for creating **HyperStudio** stacks and understanding the **HyperStudio** tools and menu.

Software Spectrum: An Overview of Adult Productivity Software provided general descriptions of software which is used by adults for greater efficiency in their own productivity. Categories are Word Processing, Desktop Publishing, Database, Spreadsheet, Financial Management, Graphics, and Integrated System software.

ClarisWorks Works! was a manual used in TIP's ClarisWorks workshops. The guide covered tips for using the word processing, graphics, spreadsheet, and database of the ClarisWorks program.

Products. The products listed below were developed by Project TIP and are available from Macomb Projects, 27 Horrabin Hall, Western Illinois University, Macomb, IL 61455. *The Wizardry of Your Mac* offers tips and shortcuts for using Macintosh computers that Project TIP staff have learned over the course of their experiences with the Macintosh. Topics include "Finder Freebies," "The Name Game," "House Keeping," "The Apple Menu," "Applications," "SCSI Throes," "Scrapbook," "Keyboard Shortcuts," and "Frequently Used Symbols." A reference section for further reading is also included in the booklet.

Logo in the Early Childhood Curriculum focuses on using ACTT Instant Logo (a simplified one-key input version of Logo) to draw pictures and designs, to solve mazes, and to move a robot. The potential Logo has for reinforcing logical and sequential thinking skills and developing problem solving strategies is discussed.

Family Involvement in the Computer Center offers ideas for computer workshops to involve families at the awareness and assistance levels. Creating newsletters, banners, signs, labels, and calendars; adapting toys; making switches; and involving parents as classroom computer assistants are among the ideas discussed.

Macintosh Public Domain and Shareware Software is a package of 14 Macintosh programs for early childhood. The accompanying guide offers short descriptions of each program.

Apple Public Domain and Shareware Software for Children is an assortment of 12 Apple programs. The accompanying guide offers short descriptions of each program.

Apple Public Domain and Shareware Switch Software for Children includes a guide offering short descriptions of each of the 12 switch programs in the package.

The Macintosh -- Where to Begin? is a 30-minute videotape that takes new Macintosh users step-by-step through the plug-and-play stages of getting a new Macintosh: setting it up, turning it on, and using it!

Future Activities

Project TIP's inservice model was originally designed for use in Illinois; however, the advantages of this technology inservice model are not limited to a single area or state. TIP's workshops and accompanying materials and products are available to interested persons and agencies throughout the United States. Information about technology workshops offered by Macomb Projects can be obtained from the Macomb Projects' offices.

Assurance Statement

Copies of this Final Report have been sent to ERIC, and copies of the title page and abstract have been sent to the following: NEC*TAS, Chapel Hill, NC; National Clearinghouse for Professions in Special Education, Reston, VA; National Information Center for Children and Youth with Disabilities, Washington, DC; Technical Assistance for Parent Programs Project, Boston, MA; National Diffusion Network, Washington, DC; Child and Adolescent Service System Program, Washington, DC; Northeast Regional Resource Center, Burlington, VT; MidSouth Regional Resource Center, Lexington, KY; South Atlantic Regional Resource Center, Planation, FL; Great Lakes Area Regional Resource Center, Columbus, OH; Mountain Plains Regional Resource Center, Logan, UT; Western Regional Resource Center, Eugene, OR; and Federal Regional Resource Center, Lexington, KY.

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